

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve

aTC425
.C32G7

AD-33 Bookplate
(1-63)

NATIONAL

**A
G
R
I
C
U
L
T
U
R
A
L**



LIBRARY

Upper Castleton River Watershed Project
Rutland County, Vermont

FINAL ENVIRONMENTAL STATEMENT

Kenneth E. Grant, Administrator
Soil Conservation Service

Sponsoring Local Organizations

Town of Pittsford, Board of Selectmen
Pittsford, Vermont 05763

Town of West Rutland, Board of Selectmen
West Rutland, Vermont 05777

Town of Ira, Board of Selectmen
Ira, Vermont 05845

Town of Poultney, Board of Selectmen
Poultney, Vermont 05764

Town of Castleton, Board of Selectmen
Castleton, Vermont 05735

Vermont Fish and Game Department, State of Vermont
Montpelier, Vermont 05602

Vermont Water Resources Board, State of Vermont
Montpelier, Vermont 05602

Poultney-Mettawee Natural Resources Conservation District
Drawer "H", 41 Main Street, Poultney, Vermont 05764

Rutland Natural Resources Conservation District
Federal Building, P.O. Box K, Rutland, Vermont 05701

SEPTEMBER 1973

Prepared By

UNITED STATES DEPARTMENT OF AGRICULTURE

U.S. Soil Conservation Service /
Washington, D. C. 20250

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

MAR - 8 1977

CATALOGING - PREP.

USDA SOIL CONSERVATION SERVICE ENVIRONMENTAL STATEMENT

Upper Castleton River Watershed
Rutland County, Vermont

Prepared in Accordance with
Sec. 102(2)(C) of PL 91-190

SUMMARY SHEET

- I. Final
- II. USDA - Soil Conservation Service
- III. Administrative
- IV. Description of Action

The Upper Castleton River Watershed Project is located in Rutland County, Vermont. The project is for flood prevention and fish and wildlife development, and requires installation of a multiple-purpose dam with fish and wildlife development, channel work, and other associated improvements for purposes of fish and wildlife management.

- V. Summary of Environmental Impact and Adverse Environmental Effects

The project will reduce flooding, sedimentation and erosion. It will allow better drainage of water from agricultural and residential areas. Opportunities for rural development will be enhanced, and the general economy will be improved. Wildlife habitat will be improved with the development of a 50-acre cold water lake fishery, a 100-acre waterfowl marsh and a 125-acre area to be purchased for and dedicated to upland wildlife habitat. However, existing upland wildlife habitat will be lost in the open water area of the impoundment at Whipple Hollow site. Construction activity will cause temporary increases in turbidity, sedimentation and noise levels at construction sites. About 3,200 feet of stream fishery will be lost at Whipple Hollow site and two miles of stream will be temporarily affected by channel work. About 30 acres of woodland will be taken for the lake.

- VI. List of Alternatives Considered

Land treatment only
Public acquisition and/or flood proofing
Various structural alternatives
No project

VII. Agencies From Which Comments Have Been Received

Governor, State of Vermont; Department of the Army; Department of Health, Education and Welfare; Department of Transportation; Department of the Interior; Environmental Protection Agency; State of Vermont, Agency of Environmental Conservation; and Professor Jeffrey Freeman, Castleton State College.

- VIII. Final statement transmitted to CEQ on October 24, 1973.
Draft statement received by CEQ on October 12, 1972.

USDA SOIL CONSERVATION SERVICE ENVIRONMENTAL STATEMENT

Title of Statement: The Upper Castleton River Watershed Project,
Rutland County, Vermont

Type of Statement: Draft () Final (X)

Date: September 1973

Type of Action: Administrative (X)

Statement:

1. Description

Authority for Project: Federal Assistance through Public Law 566,
83rd Congress, 68 Stat. 666, as amended.

Sponsoring Local Organizations: Towns of Pittsford, West Rutland,
Ira, Poultney and Castleton; Vermont Fish and Game Department;
Vermont Water Resources Board; Poultney-Mettawee Natural Resources
Conservation District; and Rutland Natural Resources Conservation
District.

Purpose of Project: The project provides for the improvement of
the hydrologic conditions in the watershed, flood prevention, and
fish and wildlife improvement and development.

Project Measures: The project plan provides for conservation land
treatment measures and structural measures consisting of one multiple-
purpose dam, three sections of channel work, a fish and wildlife
marsh improvement, and diking with highway culvert alterations.

Environmental Setting: The Upper Castleton River Watershed contains
about 32 square miles (20,500 acres). Principal land uses in the
watershed are: Cropland 1,361 acres; pasture 1,161 acres; forest
land 16,798 acres; and roads, villages and quarry operations 1,180
acres. There are an estimated 1,270 acres of flood plain consisting
of 440 acres of open water and marsh, 160 acres of shrub swamp,
200 acres of wet meadow, 400 acres of crop and pasture lands, and 70
acres of cattail swamp.

Population within the watershed is concentrated primarily in the
urban area of West Rutland. West Rutland Village is a rural
community. The watershed area is sparsely settled. There are 783
permanent residences in the Town of West Rutland, according to the
1970 census. Most employment opportunities for residents within
the watershed area are available in Rutland, 5 miles to the east.

The Rutland area economy is relatively stable and not dependent on a predominant industry. The 1971 unemployment rate of 5.6 percent was slightly lower than the state average of 6.3 percent. The average wage rate for covered employment (Vermont Department of Employment Security) in 1971 was \$6,096, somewhat lower than the state average of \$6,685.

Within the watershed the principal enterprises are dairy farming, logging, and marble quarrying. Farm operations are generally marginal, with 4 of the 12 farms having land in the flood plain falling in the low income-producing category. There are 12 commercial dairy farms in West Rutland which have herds ranging in size from 20 to 60 cows. The number of commercial farms decreased steadily during the 1960's.

The area is within the New England Economic Development Region as defined by Title 5 of the Public Works and Economic Development Act of 1965, PL 89-136.

Land values vary from a minimum of \$100 per acre for wooded uplands to \$5,000 per acre for land suitable for residential development. Land values have appreciated during the past 10 years, but not in pace with those areas that provide more recreational opportunity.

Soil and water conservation is practiced in the watershed through cooperative agreements by landowners with two Natural Resources Conservation Districts. Approximately 40 percent of the land is under agreement with either of the two Conservation Districts, and on this land approximately 40 percent of planned conservation practices has been installed.

Farms lie along the base of the steep wooded hillsides, adjoin the valley bottom, and utilize the flood plains not in swamp. Forests are principally hardwood pole stands. The dense glacial till soil and steep topography of the upland area are best suited for forest resource development with emphasis on wildlife and recreation.

The major stream in the watershed is the Castleton River, with headwaters in the Whipple Hollow valley. From its source, the river flows south a distance of 4 miles through swamps, marshes and agricultural lands to West Rutland Village, where it turns westward and flows 12 miles to the Poultney River at Fair Haven. Tributaries are small and on steep gradients. Approximately 670 acres of the watershed flood plain are swamp or marshland. One small pond (2.5 acres) is located in the headwaters. The Castleton River Watershed is adjoined on its southeast boundary by the Clarendon River Watershed, with the Clarendon River flowing in a northeasterly direction at a point one-fourth mile due east of the Village of West Rutland. The topography is such at this point that the Clarendon River has overflowed into the Castleton River Watershed and the West Rutland Village area during flood stage.

The streams of the watershed have been classified by the Vermont Water Resources Board as Class B for water quality purposes. The quality is satisfactory for recreational uses such as swimming and with treatment is satisfactory for human consumption.

The watershed provides habitat for most species of game native to Vermont. White tailed deer is considered to be the most important. The swamp areas support furbearers including beaver, mink and muskrat. Waterfowl also use the wet areas and provide limited hunting. Sections of the Castleton River above the marshes support brook trout. Below the marshes and the Village of West Rutland warm water species predominate.

Water and Related Land Resource Problems: Flooding and accompanying deposition of sediment are continual problems. In addition to the property damage caused by recurring floods, sediment has restricted channels and caused major portions of the valley to become swampy and unusable. The restriction of the streams hinders drainage of excess water from agricultural land and from West Rutland residences near the flood plain.

Farmlands in the reaches above the Middle Cross Road (see Project Map) are subject to annual flooding. In this area drainage outlets for low-lying fields cannot be built, and there is a resultant loss of productive agricultural land. Downstream, inadequate channel capacity causes flooding of residences in West Rutland Village. The buildup of sediment in the channel has resulted in a high water table which also adversely affects many residences. The flood threat and high water table in the residential area have limited property owners in the improvement of their properties and generally detract from the appearance of the community.

The average annual flood damage in the watershed is estimated to be \$40,070. Two major components of this figure are \$9,960 to agriculture, and \$23,800 to residential areas. The average annual damage to roads and bridges is estimated to be \$950.

Much of the deposition of sediment in the existing channels occurred during the 1927 flood. Since that time land use has changed resulting in better hydrologic conditions. Erosion in the uplands is not the serious problem it once was. For the entire watershed the erosion rate is estimated to be one ton per acre per year or less. The sedimentation rate at Birdseye Marsh is estimated to be 1,897 tons per year. The erosion rate from cropland is estimated to be 5 tons per acre per year. There is need for regularly scheduled streambank maintenance to limit streambank erosion.

Problems in the area of fish and wildlife management result from the underdevelopment of the water resources. The upper reaches of the Castleton River support a cold water fishery, but use by

fishermen is limited by brushy growth along much of the channel. The marsh areas are not utilized to their full potential as waterfowl habitat due to the lack of water level control facilities.

Planned Project: Installation of land treatment measures on both private and public land throughout the watershed is an integral part of the project. Land treatment measures for cropland (800 acres) will include conservation cropping systems, open drains, diversions, tile drains and obstruction removal. Grassland measures (250 acres) include drainage practices and pasture and hayland planting. Improved management will be initiated on 7,300 acres of forest land. The application of specific forestry measures on 1,250 acres will include tree planting, harvest and improved cutting, grazing control, skid trail and log road stabilization, and associated recreation and wildlife improvement measures. Land treatment measures such as debris or sediment basins and water control structures will be applied to reduce sediment and erosion in urban areas. In addition to installation of applicable land treatment measures, technical assistance for community resource development will provide resource inventories, data, and technology needed in community planning.

The major structural measures consist of one multiple-purpose dam, and channel widening and deepening through restricted reaches downstream (see Appendix E - Project Map).

The dam provides 1,064 acre-feet of storage for flood control and 406 acre-feet for a 50-acre permanent lake.

The dam, 43.5 feet in height, is an earthfill structure with a reinforced concrete drop inlet and pipe outlet. The fill material will be obtained from a borrow area located one-fourth mile southeast of the dam. One hundred acres of land including and surrounding the lake will be purchased for the fish and wildlife development. In addition, the Vermont Fish and Game Department expects to purchase an adjoining 125 acres for upland game management. A fishing access, parking lot, and toilet facilities are provided adjacent to the impoundment. The impoundment will also be a source of water, when needed, to raise the level of the marsh development at Water Street for waterfowl habitat management.

Approximately 2 miles of channel above West Rutland will be excavated to a maximum width of 20 feet and a maximum depth of 7 feet, and incorporates sills and off-channel pools to preserve the existing fishery. The lateral channel extending into West Rutland Village will be excavated to a maximum width of 15 feet and a maximum depth of 8 feet. Improvement work on the river below the confluence of the lateral with the river consists primarily of removing obstructions. Channel alignment will be designed to follow the present meanders to the extent possible.

In order to replace wildlife habitat lost in the marsh as a result of the improved stream channel system, a water control structure, installed at Water Street, protects and improves an existing 100-acre marsh for waterfowl management. This area will be improved for waterfowl by level ditching and clearing.

Flood control measures include 700 feet of dike along Clark Hill Brook to the south of the village and highway drainage alterations to U. S. Route 4 to prevent flooding by the Clarendon River.

The total estimated installation cost of the project is \$840,530, of which \$610,415 is for structural measures and \$230,115 is for land treatment. Of the total estimated cost of \$840,530, PL-565 funds will bear \$518,220 of the cost and other funds, \$322,310.

Protective measures will be taken to minimize air, water and noise pollution during construction. These measures include dust, erosion and sediment control and prompt revegetation, and will be provided by project funds. Channel work contracts will require immediate seeding of disturbed areas. Sediment traps will be provided during construction to prevent excessive sedimentation of the streams. Stream water quality will be monitored by the Vermont Department of Water Resources, and construction activity will be regulated to ascertain that turbidity and sedimentation are kept within acceptable limits.

All works of improvement will be operated and maintained in accordance with operations and maintenance agreements which will be signed by the responsible sponsors prior to construction. All works will be inspected at least annually and after every major storm. Channels will require periodic cleanout of debris and sediment, control of streambank vegetation, and maintenance of channel structures. Maintenance of the dams and dike include removal of floating trash, mowing, fertilizing, reseeding, erosion control and upkeep of the concrete and steel in appurtenant structures.

Land use changes due to the project will occur. About 60 acres of land at the Whipple Hollow site, which is currently one-half woodland and one-half pasture, will be used by the permanent pool and dam. In the remaining construction areas, land will continue in its present use after project installation.

The availability of resources for the marble operations will not be reduced by the project nor will there be an adverse effect on the marble industry.

The project does not make feasible the development of additional flood plain area to the north of the village.

Following is an excerpt from the Land Use Permit (which is attached as part of Appendix C) that lists the conditions that must be met by the sponsors before construction can commence:

- "1. No construction on the Multiple-Purpose Structure (impoundment) shall commence until the Town of Pittsford certifies to the District #1 Environmental Commission that the Town has adopted an ordinance controlling the installation of individual subsurface sewage disposal facilities that may occur in the vicinity of the impoundment. The standards of this ordinance shall be at least as stringent as those established under the Board of Health subdivision regulations.
- "2. No construction shall commence until the Town of West Rutland certifies to the District #1 Environmental Commission that the town has:
 - a) adopted a town plan that reflects the change in land use affected by the project, and provides for protection of the flood plain, and
 - b) adopted an ordinance controlling the installation and maintenance of individual subsurface sewage disposal facilities that may occur in areas affected by the project."

The sponsors have contacted the Historic Sites Division of the Vermont Agency of Development and Community Affairs, and the Agency has reported that no place of historical or archeological value will be affected. Should a discovery of possible value be made during construction, the Regional Director of the National Park Service will be notified, and measures will be taken to preserve the site.

2. Environmental Impact

Flood damage to agricultural land will be reduced by 78 percent and non-agricultural land by 80 percent. With the project completed, the area flooded by a 3-year frequency storm will be reduced from 841 acres to 413 acres. Flood stages will be reduced on a total area of 1,025 acres. Seventy-five urban properties and 12 farms are included within the benefitted area.

Land treatment measures will improve infiltration rates, reduce storm runoff, and reduce erosion, although present erosion rates are low and reductions will be relatively small. The swamping condition now existing will be eliminated, permitting drainage of excess water from agricultural land and from the residential area of West Rutland.

In the residential areas along the West Rutland lateral, the appearance of the channel and the adjacent areas will change with the removal of debris and other materials which have collected during past years. The existing wet, swampy area which adds to unsanitary conditions along the lateral will be eliminated. The swampy areas will revert to a marsh-grass or brush cover. The area between the residential area of West Rutland and Clark Hill dike will become developable.

The marsh area above Water Street will be developed and managed for waterfowl. This improvement will result in an overall increase in size and quality of the wetland wildlife habitat in the watershed and provide an opportunity to manage the marsh for maximum waterfowl use.

Channel work upstream from West Rutland, with associated clearing along the channel banks, will make additional sections of stream accessible to fishermen.

The proposed channel work will tap the existing aquifer as indicated in the U. S. Department of the Interior's letter. The channel will deepen the existing channel a maximum of $4\frac{1}{2}$ feet. Most areas will be less than $4\frac{1}{2}$ feet deep. The effect of lowering the ground water was computed utilizing the ellipse equation for drawdown. Soil characteristics for permeability were determined from results of soil investigation in the vicinity of the channel. It was computed that the maximum zone of drawdown would extend 125 feet from the bottom of the proposed channel. The zone of drawdown would be less than 125 feet along most of the proposed channel length.

Based on testimony given at the hearing conducted by District Environmental Commission #1 it is anticipated that stream temperatures would be lowered. The findings of the Commission are attached as part of Appendix C and that section pertinent to stream temperature is quoted below.

"It is anticipated that the proposed deepening of the channel will intercept aquifers containing cold water, thereby lowering the stream temperature. The resulting lower temperature water and deeper channel would provide a habitat more conducive to trout and would discourage trash fish."

There is no known existing usage of ground water in the zone of influence of drawdown. One of the marble quarries obtains run-of-stream water for its operations. Stream flow will continue to be available with the project installed. There are two reaches of channel work where a zone of influence of drawdown will occur. One reach is that section of stream located upstream from Water Street Marsh. In this area there is no development which uses ground water that might be lost as a result of the project. In the other reach, which is located along the West Rutland lateral in West Rutland Village, there is no demand on the ground water supply since water is supplied to the area by the municipal water supply system.

With the enlargement of the stream, streambed organisms will be destroyed creating a gap in the life cycle of the stream fishery. Based on the experiences of the Vermont Fish and Game Department with similar channel construction under similar conditions, these organisms and the food chain associated with a stream fishery such as exists at the present time would be restored in about one year.

The appearance of the stream will be altered in the reaches above Water Street, due to removal of brush and straightening of sharp bends.

The lake created by the dam at the Whipple Hollow site will provide a 50-acre cold water lake fishery. Provisions for public access and fishery management will provide good fishing opportunity for fishermen. Availability of open water will encourage greater numbers of aquatic birds for viewing and hunting.

Sixty acres, 30 acres in woodland and the remaining 30 acres in pastureland, will be committed to either permanent flooding or to the dam and its appurtenances. The 30 acres of woodland lost by permanent flooding represents 0.17 percent of the 16,789 acres of woodland in the watershed. The area of permanent flooding will be removed as an area available for upland wildlife habitat.

About 3,200 feet of existing stream fisheries will be lost due to inundation by the lake. The loss of this resource represents a relatively minor reduction in stream fishing opportunity since the better reaches for trout are located further downstream.

At the Whipple Hollow site, 225 acres of land will be converted from private to public ownership, with an attendant increase in public recreational use and also more intensive land use control. Of this area, 125 acres will be purchased by the Vermont Fish and Game Department and dedicated exclusively to upland wildlife habitat.

An estimated 3,830 people are expected to use the fish and wildlife features of the project annually. The facilities will accommodate 75-100 people on a peak-use day.

Development of the Whipple Hollow site will make the immediate area, currently in woodland, more attractive for low-density residential use.

Construction activity will result in temporary increases in turbidity, sedimentation and noise levels.

The project will aid rural development and contribute to the economy of the area in several ways. Construction operations will provide an estimated \$107,500 income for unemployed or underemployed local labor, and project operation and maintenance will provide an additional \$2,200 each year. Additional services related to the fish and wildlife development will also add to the economy.

Flood prevention work will provide a direct benefit of \$6,500 per year from restored agricultural productivity. It is estimated that this improved productivity will in turn generate \$12,000 worth of additional business each year in retail sales of such items as seed and fertilizer.

It is not anticipated that agricultural benefits will reverse the trend away from commercial farming. However, the improved outlook will ease the transition from farming to other uses, permitting current owners to stay on and effect an orderly change.

The project will promote community development by making the area a more attractive place to live. Maintenance of farmland will preserve open space.

An economic summary of findings is shown by Appendix A, "Table 6 - Comparison of Benefits and Costs for Structural Measures."

3. Favorable Environmental Effects

Flood damages will be reduced by approximately 79 percent.

Better drainage of the agricultural and residential area will be possible.

Wildlife habitat, including that for both waterfowl and upland game, will be improved.

Additional hunting and fishing opportunities will be provided.

Construction activity will provide increased employment opportunity for local labor.

The project will aid community development and make the area a more attractive place to live.

Improved farm productivity will ease the transition from marginal farm operations to other uses.

The appearance of the stream channels (West Rutland lateral) along the edge of the village will be improved and swampy areas nearby will be drained.

4. Adverse Environmental Effects Which Cannot Be Avoided

About 3,200 feet of natural stream fisheries will be lost at the Whipple Hollow site.

Channel work will modify the natural appearance of two miles of channel above Water Street.

Temporary increases in turbidity, sedimentation and noise levels will occur during construction.

Sixty acres of woodland and pastureland will be taken for the dam and lake. Thirty of the sixty acres are committed to permanent flooding and will become unavailable as upland wildlife habitat.

During construction and for approximately one year following construction, the stream bottom organisms in the stream will be destroyed.

5. Alternatives

The planned project was selected after studying a range of alternatives. These alternatives are described below along with the costs and effects of each.

Land Treatment Alone: The land treatment measures included in this alternative are the same as those in the planned project. The cost of these measures are estimated at about \$230,000. These measures would slightly reduce annual erosion rates on cropland, pasture, woodland and in urban areas. In addition, technical assistance for community resource development would be available to towns.

The land treatment measures would not reduce peak flows and the present flooding problems would remain. The measures would not affect the present setting in the flood plain.

Three Reservoirs and Channel: This alternative includes three reservoirs, about 10 miles of channel work, diking and land treatment. The multi-purpose reservoir on Whipple Hollow and floodwater retarding structures on Gully Brook and Birdseye Brook would retard floodwater and provide water for fish and wildlife and recreation. The channel would extend from the Whipple Hollow site to a point downstream from Birdseye Brook. The West Rutland lateral would be included as would the Clark Hill dike. The cost of this alternative would be about \$1,250,000 not including land treatment.

The measures in this alternative would provide 5-year protection to agricultural lands along the channel. Protection to the West Rutland urban area would be equal to that of the planned project and would meet the objectives of the sponsors.

The high ground water table along the reach of channel work would be lowered. This would permit drainage of the land and restoration of agriculture in this area. The marsh habitat along the channel would revert to marsh grass type habitat.

The channel work would eliminate the utilization of existing natural storage for certain flood events thereby creating increased peak flows downstream through Castleton Village for these flood events. The control provided by the three reservoirs would not be sufficient to offset these increased peaks.

Along the channel work reach, the present stream regimen would be disrupted. The reservoir sites would flood about 60 acres of upland habitat on a permanent basis.

North Britain Brook Reservoir: In the above alternative with three reservoirs, channel work, diking and land treatment, the objectives of the sponsors would be met but damages would be induced by the channel downstream in Castleton Village. To offset this increase in flows a reservoir site on North Britain Brook was studied. This would add about \$470,000 to the cost of the alternative. However, the peak flows from North Britain Brook reach Castleton River prior to the peak flows from the Upper Castleton and to reduce them with a reservoir is not effective in eliminating the damage induction.

Relocation and Zoning: In this alternative consideration was given to relocating all properties subject to flood damage in the urban area. About 75 homes and 3 commercial establishments would be involved. Flood plain zoning would prohibit development in the flood hazard areas. Land treatment measures would be installed through current programs. The cost of this alternative would be about \$2,000,000, not including land treatment.

Flood damages from the Upper Castleton River in the urban area would be eliminated. Other flood damages to agriculture and roads and bridges would continue.

Flood plain land that is now in urban use would revert to open space. Land in other areas of the town would be required to provide residential areas to those persons displaced.

The present development pattern of the town would be disrupted. The 75 houses represent about 10 percent of the homes in town. Relocation of this number of people would have a significant social impact. A major adjustment in the town facilities and services would be necessary.

The present marsh areas and stream courses in the watershed would remain intact. Swamping of the river channel is likely to continue, ground water tables will remain or rise, and agricultural land will continue to revert to marshes.

Floodproofing and Zoning: This alternative includes the floodproofing of 75 homes and 3 commercial buildings. Blocking of basement windows and waterproofing basements would protect 35 homes from high water tables and overland flooding. On 40 of the residences only waterproofing of basements would be necessary. Connecting residences to the town sewerage system will eliminate inadequate septic systems. Zoning of about 1,300 acres of flood plain would prohibit future development in the flood hazard areas. Land treatment measures would be installed under current programs. The cost of the floodproofing and zoning would be about \$150,000.

In the urban area, a 100-year level of protection would be provided to the 75 houses and 3 commercial establishments. No flood protection would be provided for roads and bridges or agricultural land. Flood damages would not increase from additional development.

Within the residential area of the flood plain, swampy conditions and mosquito infestation would still exist. Overland flooding would continue to force evacuation and damage the grounds. Continued swamping would further aggravate this situation in the future.

Outside the urban portion of the flood plain the current setting would continue to exist. The present agricultural use pattern would remain. Agricultural acreage would continue to decrease because of swamping and would continue to revert to marsh. The stream course would remain intact. The effects of the land treatment measures would be the same as described under "Planned Project."

Maintain Existing Condition: In the absence of any preventive measures, flood damages will continue. About 75 homes and 3 commercial establishments will continue to have wet basements on an annual or continuous basis. About 35 homes are subject to overland flooding during the 100-year storm. Agricultural land continues to revert back to marsh land as swamping occurs along the river and marsh land acreage continues to increase.

With a lack of control on land use, flood hazard areas are susceptible to encroachment from unplanned filling or development. The potential for increases in flood damage would not be checked. If the planned project was not implemented, the annual monetary benefits foregone would be \$32,130.

6. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The project measures and objectives are consistent with expected long-term trends toward less intensive agricultural use and increased residential and recreational use of the area. The project will provide benefits under present conditions and is expected to do so beyond its 100-year design life.

The land to be affected by the impoundment site will be committed to this use; otherwise, there are no project features which would limit the options available for future development of the area. The impoundment can be developed for more intensive recreational use if this becomes desirable.

Achievement of proper forest land management and protection in urbanizing and rural areas during the installation period and continued maintenance for the life of the project can provide a quality of environment for the future. The forested area in the watershed is expected to be reduced by 185 acres due to land use shifts. This loss of forest resources will have little effect on the economy or physical status of the watershed.

7. Irreversible and Irretrievable Commitments of Resources

There are approximately 240 acres of land which will be used by the project. Of this amount, 100 acres will be used by the multiple-purpose dam, permanent and temporary pool, basic facilities, and emergency spillway; 100 acres by the Water Street fish and wildlife improvement; 2 acres by Clark Hill Brook dike; and 38 acres by channel work including access areas required for operation and maintenance of the channel. The present land use consists of 70 acres in hay and pasture, 52 acres in forest land, and 80 acres in cattail swamp. The 38 acres required for channel work are in a variety of uses ranging from cattail swamp to cropland. Other resource values affected by the project are 3,200 feet of stream fishery flooded by the permanent pool of the lake and 1,800 feet flooded by the temporary flood pool.

The area used for the dam and impoundment is considered to be permanently committed. The permanence of other structural work could be modified or negated in the future at relatively little cost.

8. Consultation With Appropriate Federal Agencies and Review by State and Local Agencies Developing and Enforcing Environmental Standards

a. General

Consultation with directly concerned state agencies and local governments and organizations has been achieved through the sponsorship of project planning by these groups. Preliminary plan proposals prepared by the Soil Conservation Service were reviewed with the sponsors at intervals throughout the planning period, 1965 through 1972. During this time meetings held for the purpose of decision-making, coordination, and public information numbered over twenty.

Draft copies of the plan were provided to interested agencies and organizations inviting comments. An informal field review was held in the watershed on February 18, 1971. An assessment of the environmental impact of the project was presented at that meeting by a committee appointed by the project sponsors.

The effect of the project on fish and wildlife was investigated by the U. S. Bureau of Sport Fisheries and Wildlife. The initial report pointed out the possible loss of wetland habitat. Subsequent investigations in cooperation with the Soil Conservation Service and the Vermont Fish and Game Department resulted in recommendations for the measures now included in the plan. These recommendations were transmitted in the Bureau's final conservation and development report of November 18, 1969.

Measures to prevent flooding by the Clarendon River involved modification of highway drainage at the U. S. Route 4 approach. These measures and the Clark Hill dike, part of which will be located on highway right-of-way, were planned in cooperation with the Vermont Highway Department.

The Vermont Department of Forests and Parks considered an early proposal in the project for development of the Whipple Hollow site for recreation, but later decided not to participate.

As a project sponsor, the Vermont Water Resources Board coordinated efforts and provided liaison between state and local agencies involved in the planning process.

A public information program has been carried out, primarily through newspaper coverage and meetings, during planning. No public controversy regarding the value of the project was evident during plan development. A few letters from individuals appeared later in the Rutland Herald both for and against the project.

Three hearings were held during processing of the sponsors' application for an environmental permit under Vermont's Act 250. Discussion at these hearings centered on the effects of the project on fisheries and the adequacy of local land use controls to handle possible development stimulated by the project.

b. Discussion and Disposition of Each Problem, Objection, or Issue Raised on the Draft Environmental Statement by Federal, State and Local Agencies, Private Organizations and Individuals

Agencies from which comments were requested are: The Governor, State of Vermont; Planning and Community Services Agency (State Clearinghouse); Department of the Army, Corps of Engineers; Department of the Interior; Department of Commerce; Department of Health, Education and Welfare; Environmental Protection Agency; and Federal Power Commission.

The Governor, State of Vermont; Department of the Army; Department of Health, Education and Welfare; Department of Transportation, United States Coast Guard; Department of the Interior; Environmental Protection Agency; State of Vermont, Agency of Environmental Conservation; and Professor Jeffrey Freeman of Castleton State College responded. In addition, a committee appointed by the sponsors of the project prepared its own environmental statement.

All comments received by the groups listed above are included in Appendix B.

Governor Deane C. Davis, in his response, stated his belief that the project presented the only feasible solution, under existing programs, to problems caused by unwise land use decisions made in the past.

The Department of the Army; the Department of Health, Education and Welfare; and the Department of Transportation, United States Coast Guard, responded. All stated that they had no objections to the project.

Specific comments received on the draft environmental statement are included in the following paragraphs.

Agency of Environmental Conservation, State of Vermont

Comment: On the Summary Sheet, Art. V, Last sentence; on Page 6 Paragraph 5; on Page 7, Art. 4, Paragraph 3; should read, "Construction activity will cause temporary increases in turbidity, sedimentation and noise levels."

Response: These suggestions were incorporated into the Summary Sheet and page 8 of the final environmental statement.

Comment: The environmental statement should recite the conditions of the Act 250 permit #1R0041, a copy of which is attached.

Response: We concur. The permit is attached as Appendix C of this final environmental statement.

Professor Jeffrey V. Freeman, Department of Natural Science,
Castleton State College, Castleton, Vermont

Comment: Professor Jeffrey V. Freeman, Department of Natural Science, Castleton State College, Castleton, Vermont had three concerns. The first is the need for limiting or preventing downstream siltation which may result from the project. His second concern is the impact that the land improvements may have on the town of West Rutland. Third, his concern is for the operation and maintenance of the project works of improvement. The statement discusses these concerns.

Response: The environmental statement states on page 5 that the Department of Water Resources will monitor and regulate stream water quality as related to turbidity and sedimentation from project construction activity. This is also noted in the District Environmental Commission #1 findings found in Appendix C.

The environmental statement has been modified on page 6 to show as Professor Freeman has stated that Act 250 (District Environmental Commission #1 findings - Appendix C) covers many of the problems relating to the impact of land improvements on the Town of West Rutland.

The environmental statement has been modified on page 5 to cover in more detail the operation and maintenance phase of the project.

U. S. Environmental Protection Agency

Comment: The draft statement does recognize that temporary increases in sedimentation and noise levels will occur during construction, but does not point out that the channelization could remove valuable benthic organisms from the stream, thus damaging the existing fishery. The final statement should estimate the extent of this loss and indicate when the fishery is likely to recover.

Response: The loss of benthic organisms is recognized on page 8. It is expected that the stream will recover in about one year.

U. S. Department of the Interior

Comment: The work plan adequately considers fish and wildlife resources. Project implementation will result in improved conditions for fish and wildlife. However, we request that the enclosed report of the Bureau of Sport Fisheries and Wildlife accompany the work plan when it is forwarded to the Congress.

Response: We concur. The fish and wildlife report prepared by the Bureau of Sport Fisheries and Wildlife will accompany the work plan when it is forwarded to Congress.

Comment: The potentials for recreation development have not been fully explored in the work plan study. Boating, hiking, fishing, hunting, and snowmobiling are the only activities that are mentioned. However, potential exists for a wider spectrum of activities including swimming, camping, and picnicking. We believe these activities should be incorporated into the plan since the demand for these activities continues to increase.

Response: The potential of adding swimming, camping and picnicking activities was explored. Due to other financial priorities, the sponsors elected not to include these recreation activities.

Comment: Marble quarrying and processing is the major industry and the only significant mineral industry in the vicinity. Additional marble is imported from other areas for processing in the local mills. Neither of the two active marble operations, located about one mile north of West Rutland, would be affected by the project. Both the

work plan and environmental statement can reflect the finding that the availability of resources would not be reduced nor would there be an adverse effect on the mineral industry as a result of this project.

Response: We concur. This was an oversight, and page 5 of the final environmental statement has been modified to include project impacts on marble operations.

Comment: Although the work plan was reportedly developed using standard Soil Conservation Service methods, neither the work plan nor the environmental statement contains specific data which would enable us to appraise the evaluation of the impact of the proposed action on the geology or water resources and related aspects of the environment. We agree, of course, that there will be an increase in sedimentation during construction; however, we cannot appraise the channelization effects on the basis of the presentation. We are interested in the suggestion (p. 5, draft statement) that the groundwater/surface water relationships may be altered markedly by the project channel deepening which may tap some aquifers to an extent sufficient to result in lowered stream temperatures. Both the report and the environmental statement should discuss this effect in greater detail, with particular reference to lowering present groundwater levels and the effects on present usage of groundwater.

Response: The ground water will be lowered a maximum of 4.5 feet and will affect drawdown up to 125 feet from the side of the stream. The final environmental statement has been modified by expanding the discussion on page 7 concerning ground water drawdown, change in temperature and uses of the ground water resource. Also, the report of State of Vermont land use permit and hearing proceedings of District Environmental Commission #1 analyzed some of these problems. The report is attached as Appendix C of this final environmental statement.

Comment: We believe that the work plan should present a unified, comprehensive flood plain management plan in correlation with the implementation of the recommended work plan. Very little information was provided which would enable the reviewer to assess the merits of non-structural solutions such as flood plain zoning as an independent solution or as an adjunct to the recommended plan. We believe the work plan should not only demonstrate the economics of the recommended plan but also demonstrate that the proposed plan is the best solution to the basin's problems from both a structural and non-structural standpoint.

Response: The State of Vermont's permit to install the project has as a condition an adequate flood plain management plan. Page 6 of the final environmental statement has been modified accordingly. The permit is attached as Appendix C.

Comment: This summary of beneficial and adverse environmental effects discusses the beneficial affects that will result from project construction and only cites turbidity and noise during construction. We believe the section should be expanded to discuss other adverse effects associated with project construction such as loss of forest cover, wildlife habitat, and the effect on fishery resources due to channelization.

Response: The summary sheet has been modified to include adverse impacts affecting fish and wildlife resources and loss of forest cover. Stream fishing will be lost at the Whipple Hollow site along 3,200 feet of stream. This reach of stream will be flooded by the 50-acre lake. In addition about 2 miles of stream will be affected by channel work. About 30 acres of forest cover will be lost when the area is taken for the lake and is flooded. This 30 acres of forest cover represents about 0.17 percent of the 16,789 acres of woodland in the watershed.

Comment: The section should include additional detail about the proposed physical measures so that analysis of their impact can be made without reference to another document.

Response: The planned project section on pages 4, 5, and 6 has been expanded to include additional detail about the proposed physical measures.

Comment: The section should be expanded to include figures for capacity and estimated recreational use planned for the project. We also believe the last part of the next-to-last paragraph should be deleted from this section and discussed in the impact section.

Response: An estimated 3,830 people are expected to use the fish and wildlife features annually. The final environmental statement has been modified to include the use on page 8.

Comment: We note that page 4 of this section provides no quantification of the features of the project. We believe it would be appropriate to provide the dimensions of the proposed dike and dam, their design, composition, and data on the source on the construction materials.

Response: Pages 4 and 5 of the final environmental statement were modified to include quantification of the features of the project.

Comment: This section should be enlarged to discuss the impact of recreation development upon the natural resources and the economy of the study area.

Response: Page 8 has been modified to include that an estimated 3,830 people will use the fish and wildlife features of the project.

Comment: The last five sentences in the next-to-last paragraph of the project description section should be placed in this section of the report.

Response: These sentences discuss land use in the construction and fish and wildlife development areas. Three of the sentences noted that there was change resulting from the project so consequently denoted an impact and have been moved to the Impact section on pages 6, 7, 8, and 9. The other two sentences note that there is no change and were left in the Project Description section.

Comment: We suggest omitting paragraphs six and eight. The encouragement of urbanization, alteration of natural stream appearance, and the draining of wetlands are not deemed as favorable environmental effects when viewed in terms of fish, wildlife and esthetics.

Response: The suggestion that paragraphs six and eight be omitted from the Favorable Environmental Effects section and included in the Adverse Effects section may be valid in terms of fish and wildlife. However, these paragraphs are correct as stated relating to the quality of man's environment. With respect to the well-being of fish and wildlife, it is recognized that there will be improvement and development of fish and wildlife habitat by the project. The project also has some adverse impacts on fish and wildlife resources.

Comment: The section states that the project will aid community development. This implies that settlement on the flood plain lands may be anticipated and, as such, induced development may not be considered as a favorable effect. If implementation of the project is combined with some appropriate flood plain zoning, a favorable environmental effect can be generated. Further clarification of this point is warranted.

- Response: The comment that community development without some appropriate flood plain zoning would be an adverse effect is valid only if development takes place on the flood plain. The Land Use Permit granted by the State of Vermont District #1 Environmental Commission states that no construction shall commence on the flood plain lands until protection is provided for the flood plain. The Land Use Permit is attached as Appendix C.
- Comment: We suggest including paragraphs six and eight from the favorable environmental effects given in your draft statement.
- Response: As responded in a previous comment, paragraphs four and six are favorable impact when viewed from man's environment point of view. The environmental statement does recognize that there will be adverse impacts on the fish and wildlife resource.
- Comment: The anticipated loss of forest lands is not included as an adverse environmental effect. We suggest expanding this section to assess the effects associated with the loss of forest lands. Loss of the timber resource, reduction of wildlife habitat, and esthetics are some of the more obvious adverse effects that could be highlighted.
- Response: The environmental statement is modified on page 10 to add the loss of forest land as an adverse impact. Esthetics resulting from project action could be either favorable or unfavorable. The timber resource loss will involve forest land with sparse stands and grazed woodlands. Therefore, the loss of timber resource may not be significant.
- Comment: This section should be expanded to provide some assessment of non-structural solutions such as flood plain zoning.
- Response: The alternatives section of the environmental statement pages 10, 11 and 12 has been modified to include flood plain zoning as an alternative.
- Comment: The last two paragraphs of this section do not appear to give balanced presentations of the alternatives. The use of dollar benefits foregone should the project not be built provides only a partial measure of the quantifiable benefits and costs, monetary values, and must be assessed in close relationship to the environmental gains and losses of a non-monetary nature in order to be in keeping with the spirit and intent of the National

Environmental Policy Act. Accordingly, we suggest that the discussion of these alternatives encompass both economic and environmental effects in order to be sure that dollar values do not bias the evaluation in favor of the recommended proposal.

Response: The final environmental statement was modified on pages 10, 11 and 12 to discuss the alternatives more completely. The inclusion of monetary benefits does not bias the selection of the structural alternatives over nonstructural alternatives. The proposed project is selected based on net impacts of all aspects, not just monetary evaluation.

Comment: This section states that there are no project features which would limit the options available for future development of the area. We find it difficult to reach the same conclusion when non-structural solutions that are not evaluated could have even less effect on short-term uses and long-term productivity than the recommended project. More detailed analysis of the alternatives appears warranted before an adequate discussion on this section of the statement can be given.

Response: The alternatives section, pages 10, 11 and 12 of the environmental statement has been revised to discuss additional alternatives, both structural and non-structural. Section 6 of the statement dealing with the relationship of local short-term uses and long-term productivity recognizes that there will be land areas taken for the installation of the 50-acre lake facility and consequently options for the use of those specific areas will be limited. Generally the project does not limit the options for development above and beyond the limits that exist today. Except for land necessary for the 50-acre lake facility, the project encourages the continuance of present land use. As examples, flood protection provides existing agricultural and urban areas adequate protection so that it will be more economical for these areas to remain in their present uses. The 125 acres to be purchased by the Fish and Game Department will remain in the same use as present. The Water Street Marsh fish and wildlife improvement will continue in its existing use. The tendency to maintain the existing uses does not preclude other uses or options at a later date.

9. List of Appendices

Appendix A - Comparison of Benefits and Costs for Structural Measures

Appendix B - Letters of Comment Received on the Draft Environmental Statement

Appendix C - State of Vermont Land Use Permit and Hearing Proceedings
of District Environmental Commission #1

Appendix D - Environmental Impact Statement Prepared by the Sponsors

Appendix E - Project Map

APPROVED BY

Kenneth E. Grant
Kenneth E. Grant, Administrator

DATE

October 18, 1981

TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES

Upper Castleton River Watershed, Vermont

(Dollars)

| Evaluation Unit | Average Annual Benefits 1/ | | | | | Total | Average ^{3/} Annual Cost | Benefit Cost Ratio |
|---|----------------------------|--------------------------|-------------------|-----------|--------------|--------|-----------------------------------|--------------------|
| | Damage Reduction | Changed Land Use (Urban) | Fish and Wildlife | Secondary | Revel-opment | | | |
| Multiple Purpose Structure - channel and dike | 27,300 | 19,320 | 12,570 | 5,530 | 6,690 | 71,410 | 35,580 | 2.0:1 |
| Project Administration | | | | | | | 3,700 | |
| GRAND TOTAL | 27,300 | 19,320 | 12,570 | 5,530 | 6,690 | 71,410 | 39,280 | 1.8:1 |

1/ Price Base: 1972 except 1971 for installation cost and 1971 adjusted normalized prices for flood damage reduction benefits for crop and pasture.

2/ In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of \$4,350 annually.

3/ From Table 4.

Date: April 1972



STATE OF VERMONT
EXECUTIVE DEPARTMENT
MONTPELIER, VERMONT

NOV 13 1972

RECEIVED
MAIL ROOM

NOV 15 PM 12 55

SOIL CONSERVATION SVC.
WASH., D.C.

Mr. Kenneth E. Grant, Administrator
United States Department of Agriculture
Soil Conservation Service
Washington, D. C. 20250

Dear Mr. Grant:

This is to acknowledge receipt of the Upper Castleton River Watershed Work Plan and the draft environmental statement.

After reviewing the plan, I believe that the project is the only feasible solution under existing programs, to problems caused by unwise land use decisions made in the past. I therefore endorse the proposed project.

In regard to the environmental statement, I find it adequate in light of existing criteria.

Sincerely,

A handwritten signature in cursive script, reading "Francis Davis".

DCD:sa



DEPARTMENT OF THE ARMY
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D.C. 20310

9 FEB 1973

Honorable Thomas K. Cowden
Assistant Secretary of Agriculture
Washington, D. C. 20250

Dear Dr. Cowden:

In compliance with the provisions of Section 5 of Public Law 566, 83d Congress, the Administrator of the Soil Conservation Service, by letter of 18 October 1972, requested the views of the Secretary of the Army on the work plan for the Upper Castleton River Watershed, Vermont.

We have reviewed this work plan and foresee no conflict with any projects or current proposals of this Department. The draft of the environmental statement satisfies the requirements of Public Law 91-150, 91st Congress, insofar as this Department is concerned.

Sincerely,

Charles R. Foul
for Kenneth E. BeLieu
Under Secretary of the Army

173
FEB 1973
SVC.

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
REGION I

TO : Soil Conservation Service, Dept. of
Agriculture, Washington, D.C.
Attn: Mr. Kenneth E. Grant, Administrator

DATE: January 15, 1973

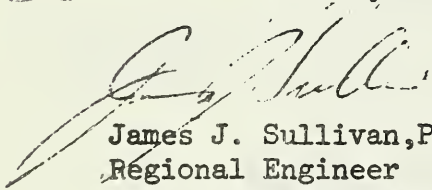
FROM : Facilities Engineering & Construction,
Dept. of Health, Education, & Welfare, Region I,
Boston, Massachusetts 02203

SUBJECT: Environmental Impact Statement re Upper Castleton River Watershed
Vermont.

Reference is made to subject impact statement and your request for comments.

This office has no projects or specific areas of concern in the general vicinity of this proposed project. A review of the draft environmental impact statement and telephone conversations with Mr. Weston L. Blanchard of the Vermont Department of Health and Mr. Martin Johnson of the Vermont Water Resources Board indicate that overall impact on the environment will be one of general improvement.

Accordingly, this office has no objection to the project and recommends approval of the project and the Environmental Impact Statement as written.


James J. Sullivan, P.E.
Regional Engineer
Facilities Engineering &
Construction, DHEW, R-1

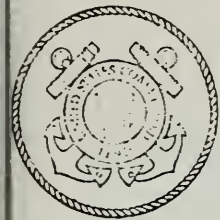
cc: Cy of this memo &
Control Slip fwd. to
R. Lanza, Rm. 4062, Wash, D.C.

SOIL CONSERVATION SVC.
WASH., D.C.

1973 JAN 18 AM 9 35

MAIL ROOM

JAN 16 1973



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Administrator for
Watersheds

MAILING ADDRESS:
U. S. COAST GUARD (GWS/83)
490 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: 426-2262

DEC 12 1972

Honorable Kenneth E. Grant
Administrator, Soil Conservation
Service
Department of Agriculture
Washington, D. C. 20250

Dear Mr. Grant:

This is in response to your letter of 20 October 1972 addressed to Admiral Bender transmitting a draft environmental statement for the Upper Castleton River Watershed, Vermont, for our review and comment.

The Department of Transportation has reviewed your proposed draft statement. We have no comments to offer and we have no objection to this project.

The opportunity for the Department of Transportation to review the proposed impact statement is appreciated.

Sincerely,

J. D. MCGINN
Captain; U. S. Coast Guard
Deputy Chief, Office of Marine
Environment and Systems

SOIL CONSERVATION SVC.
WASH., D.C.

DEC 14 PM 2 17

MAIL ROOM
RECEIVED



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In reply refer to:
ER-72/1223

FEB 1 1973

1973 FEB 1 5 10 11
RECEIVED
MAIL ROOM

Dear Mr. Secretary:

This is in reply to your letter of October 18, 1972, requesting our review and comments on a work plan and draft environmental statement for the Upper Castleton River Watershed, Vermont.

The work plan adequately considers fish and wildlife resources. Project implementation will result in improved conditions for fish and wildlife. However, we request that the enclosed report of the Bureau of Sport Fisheries and Wildlife accompany the work plan when it is forwarded to the Congress.

The potentials for recreation development have not been fully explored in the work plan study. Boating, hiking, fishing, hunting, and snowmobiling are the only activities that are mentioned. However, potential exists for a wider spectrum of activities including swimming, camping, and picnicking. We believe these activities should be incorporated into the plan since the demand for these activities continues to increase.

Marble quarrying and processing is the major industry and the only significant mineral industry in the vicinity. Additional marble is imported from other areas for processing in the local mills. Neither of the two active marble operations, located about one mile north of West Rutland, would be affected by the project. Both the work plan and environmental statement can reflect the finding that the availability of resources would not be reduced nor would there be an adverse effect on the mineral industry as a result of this project.

Although the work plan was reportedly developed using standard Soil Conservation Service methods, neither the work plan nor the environmental statement contain specific data which would enable us to appraise the evaluation of the impact of the proposed action on the geology or water resources and related aspects of the environment. We agree, of course, that there will be an increase in sedimentation during construction;

however, we cannot appraise the channelization effects on the basis of the presentation. We are interested in the suggestion (p. 5, draft statement) that the groundwater/surface water relationships may be altered markedly by the project channel deepening which may tap some aquifers to an extent sufficient to result in lowered stream temperatures. Both the report and the environmental statement should discuss this effect in greater detail, with particular reference to lowering present groundwater levels and the effects on present usage of groundwater.

The proposal does not appear to have any adverse effect on any existing or potential units of the National Park Service nor on any sites that are eligible for registration as National Historic, Natural or Environmental Education Landmarks.

The report contains the provision that the National Park Service will be notified should a discovery of possible value be made during construction. Also, the report indicates that the Historical Sites Division of the Vermont Agency of Development and Community Affairs has been contacted with regard to potential historic sites within the area and that agency has reported that no place of historical or archeological value will be affected.

We believe that the work plan should present a unified, comprehensive flood plain management plan in correlation with the implementation of the recommended work plan. Very little information was provided which would enable the reviewer to assess the merits of non-structural solutions such as flood plain zoning as an independent solution or as an adjunct to the recommended plan. We believe the work plan should not only demonstrate the economics of the recommended plan but also demonstrate that the proposed plan is the best solution to the basin's problems from both a structural and non-structural standpoint.

We have reviewed the draft environmental statement for this proposal and submit the following comments for your consideration and use in preparing a final statement.

Summary

This summary of beneficial and adverse environmental effects discusses the beneficial affects that will result from project construction and only cites turbidity and noise during construction. We believe the section should be expanded to discuss other adverse effects associated with project construction such as loss of forest cover, wildlife habitat, and the effect on fishery resources due to channelization.

Project Description

The section should include additional detail about the proposed physical measures so that analysis of their impact can be made without reference to another document.

The section should be expanded to include figures for capacity and estimated recreational use planned for the project. We also believe the last part of the next-to-last paragraph should be deleted from this section and discussed in the impact section.

We note that page 4 of this section provides no quantification of the features of the project. We believe it would be appropriate to provide the dimensions of the proposed dike and dam, their design, composition, and data on the source on the construction materials.

Environmental Impacts

This section should be enlarged to discuss the impact of recreation development upon the natural resources and the economy of the study area.

The last five sentences in the next-to-last paragraph of the project description section should be placed in this section of the report.

Favorable Environmental Effects

We suggest omitting paragraphs six and eight. The encouragement of urbanization, alteration of natural stream appearance, and the draining of wetlands are not deemed as favorable environmental effects when viewed in terms of fish, wildlife and esthetics.

The section states that the project will aid community development. This implies that settlement on the flood plain lands may be anticipated and, as such, induced development may not be considered as a favorable effect. If implementation of the project is combined with some appropriate flood plain zoning, a favorable environmental effect can be generated. Further clarification of this point is warranted.

Adverse Effects

We suggest including paragraphs six and eight from the favorable environmental effects given in your draft statement.

The anticipated loss of forest lands is not included as an adverse environmental effect. We suggest expanding this section to assess the effects associated with the loss of forest lands. Loss of the timber resource, reduction of wildlife habitat, and esthetics are some of the more obvious adverse effects that could be highlighted.

Alternatives

This section should be expanded to provide some assessment of non-structural solutions such as flood plain zoning.

The last two paragraphs of this section do not appear to give balanced presentations of the alternatives. The use of dollar benefits foregone should the project not be built provides only a partial measure of the quantifiable benefits and costs, monetary values, and must be assessed in close relationship to the environmental gains and losses of a non-monetary nature in order to be in keeping with the spirit and intent of the National Environmental Policy Act. Accordingly, we suggest that the discussion of these alternatives encompass both economic and environmental effects in order to be sure that dollar values do not bias the evaluation in favor of the recommended proposal.

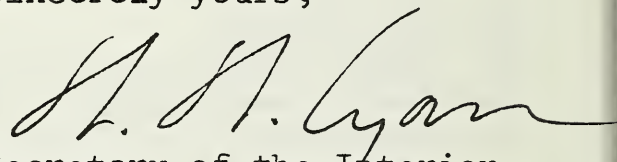
Short Term Uses vs. Long Term Productivity

This section states that there are no project features which would limit the options available for future development of the area. We find it difficult to reach the same conclusion when non-structural solutions that are not evaluated could have even less effect on short-term uses and long-term productivity than the recommended project.

More detailed analysis of the alternatives appears warranted before an adequate discussion on this section of the statement can be given.

We wish to thank you for the opportunity to review this report and draft environmental statement and trust you will find our comments to be beneficial.

Sincerely yours,



Deputy Assistant Secretary of the Interior

Honorable Earl Butz
Secretary of Agriculture
Department of Agriculture
Washington, D. C. 20250

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

JOHN F. KENNEDY FEDERAL BUILDING - ROOM 2303, BOSTON, MASSACHUSETTS 02203

November 28, 1972

Mr. Kenneth E. Grant, Administrator
United States Department of Agriculture
Soil Conservation Service
Washington, D. C. 20250

SOIL CONSERVATION SVC.
WASH. D.C.

NOV 29 1 AM 8 46

RECEIVED
MAIL ROOM

Dear Mr. Grant:

We have reviewed the draft environmental impact statement for the Upper Castleton River Watershed Project. With the exception discussed below, we feel that the adverse environmental effects of this project will be minimal, and we concur with the planned improvements.

The draft statement does recognize that temporary increases in sedimentation and noise levels will occur during construction, but does not point out that the channelization could remove valuable benthic organisms from the stream, thus damaging the existing fishery. The final statement should estimate the extent of this loss and indicate when the fishery is likely to recover.

We hope our comments will be helpful in preparing a final impact statement. Please send us a copy when it is released.

Sincerely yours,

Merrill S. Hohman
Director
Management Division



State of Vermont

AGENCY OF ENVIRONMENTAL CONSERVATION

ROBERT B. WILLIAMS, Secretary

Montpelier, Vermont 05602

DEPARTMENT OF WATER RESOURCES

Department of Fish and Game
Department of Forests and Parks
Department of Water Resources
Environmental Board
Division of Environmental Protection
Division of Recreation
Division of Planning
Natural Resource Conservation Council

December 20, 1972

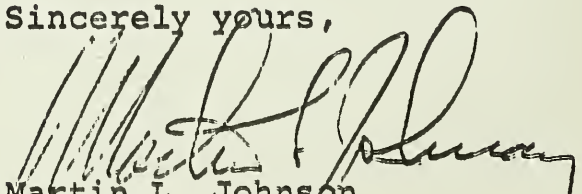
Mr. Craig M. Right
State Conservationist
U.S. Dept. of Agriculture
Soil Conservation Service
96 College Street
Burlington, Vermont 05401

Dear Craig:

We have the following comments on your draft environmental statement for the Upper Castleton River Watershed Project:

1. On the Summary Sheet, Art. V, Last sentence; On Page 6, Paragraph 5; On Page 7, Art. 4, Paragraph 3; should read, "Construction activity will cause temporary increases in turbidity, sedimentation and noise levels."
2. The environmental statement should recite the conditions of the Act 250 permit #1R0041, a copy of which is attached.

Sincerely yours,


Martin L. Johnson
Commissioner of Water
Resources

MLJ/vb
encl.

Response to Draft NEPA Environmental Impact Statement

Upper Castleton River Watershed Project

December 1972

This response cannot be considered to be completely objective since I have been involved in this project since 1965 as a representative from Castleton as one of the original sponsors. Also made a statement at one of the hearings under Act 250 earlier this year. At this hearing I represented the Rutland Regional Planning Commission.

My chief concern at present is that sufficient care be taken to limit or prevent downstream siltation as this project gets underway. In addition, the reasons for not silting became clearer when no references were found.

Streambed fauna began to receive attention back in 1935 but seems that work in the 1960's became more intensive. The evidence given by H. P. N. Hynes of the University of Waterloo in Ontario seems to be the strongest so far. The paper by Coleman and Hynes (1970) is abstracted below. "A type of sampler described that permits the collection of benthic fauna to a depth of 30 cm in the beds of streams. It depends on the colonization of artificial substratum placed into the streambed, and invasion can occur both horizontally and vertically downward. When fully colonized, these samplers collect many times the number of animals taken by vigorous stirring of the substratum upstream of a net.

"Sets of samplers in which only one of four possible horizontal layers about 7.5 cm deep was available for colonization were implanted in an Ontario stream and lifted from 1 to 28 days later.

"The total numbers of many types of animals increased steadily with time in all 4 layers; more than 28 days are probably needed for full colonization. When all the catches are considered together only about 20% of the total was in the top layer, about 26% was in the bottom layer, and the rest was about evenly distributed in the two middle layers. This type of distribution was found for all the groups of animals present. Only Simulium appeared to be normally confined to the surface of the substratum. (Simulium indicates black flies. JVF)

"It is suggested that significant numbers of animals occur deep within the substratum of stony streams, and that even samples collected down to 30 cm do not adequately represent the fauna."

An additional reference, that of Williams (1972), is included here. Some lines taken from the abstract of his thesis follow:

"It had been assumed until recently that all the benthic fauna of streams occurred within a few centimeters of the surface of the substrate. ... The overall results show that very large numbers of animals are to be found in the substrate and that these may be subject to vertical migrations depending perhaps on competition, food, oxygen, interstitial space, temperature, etc. The implications of such sub-benthic populations are that they may help the benthos to recolonize should it be depleted by flood damage, pollution, etc."

The necessity of preventing siltation is evident. The spaces between pieces of gravel in stoney streambeds are habitat. The stream fishery will be altered in the Castleton River and much concern has arisen because of the two-mile channelization project. Unless words are specifically written to enforce streambank stabilization then this may be a weak place in this project.

An interesting quote follows from the writing of Maas (1968).

"Conservation programs have been devised and then supported on the 'authoritative base of science', but when this scientific base or any part of it is challenged by new findings, supporters of the program, both in and out of government, are ambivalent. Their dedication to science leads them to promote the type of research that can turn up new and contrary results. But the fact that their public, and most often legislative, support is based on previously proclaimed scientific authority makes them hesitant to give currency to the new findings."

In addition to the matter of siltation due to the violence of channelization there are two other observations. The first is the matter of the impact of the land improvements on the Town of West Rutland. The second is the maintenance of the existing drainways that parallel the D. & H. RR tracks in West Rutland.

The matter of land use planning in West Rutland has been addressed by Mr. Schyler Jackson at the hearing which I attended (one of three, I believe). The attractiveness of the 50-acre pond in Whipple Hollow that will result from this project will certainly put increased traffic on the road that leads up that way. The land along this road will probably be subdivided as farming gradually declines. The loss of 3200 feet of stream fishery under the pond and the channelization of 2 miles of additional streambed and the removal of vegetation will be part of the creation of the lake and a new wetland under management. These certainly will, I feel, have a strong influence on the land use in West Rutland. I believe that this matter has already been covered under Act 250.

The drainways along the railroad track are presently in poor condition. Trees are growing in them near town, junk is placed along the banks and a state of no maintenance is evident. I do not know whose responsibility this is at this point. The impact of a federal project is often that something is being gotten for nothing. I would hope that the Town of West Rutland adequately provides documentation for the future care of the works to be built or improved under this project. If no such provision is made then a similar tax-supported project may be needed in the future where timely care and maintenance could have avoided another major project.

I am on record as supporting this project. I feel that the net benefits are evident and that if the matters mentioned above are adequately taken into account that the project will be better for it.

References

- Coleman, Mary J. and Hynes, H. B. N. 1970. The vertical distribution of the invertebrate fauna in the bed of a stream. *Limnol. Oceanogr.* 15: 31-40.
- Gillette, Robert 1972. Stream channelization: conflict between ditchers, conservationists. *Science* 176(4037): 890-4 (26 May)
- Maas, Arthur 1968. IN International Encyclopedia of the Social Sciences. Vol. 3. New York, The Macmillan Co. and the Free Press. pp. 271-290.
- Williams, D. Dudley 1972. The vertical distribution of animals in stream beds. M. Sc. Thesis, Univ. of Waterloo, 100 pp.

Submitted by
Jeffrey V. Freeman
Dept. of Natural Science
Castleton State College
Castleton, Vermont 05735

Vermont Environmental Board
District Environmental Commission

LAND USE PERMIT

(10 VSA, Chapter 151)

Application Number: 1R0041

Name and Address of Applicant: Upper Castleton River Watershed Project
c/o Department of Water Resources
State Office Building
Montpelier, Vermont 05602

Nature of Development or Subdivision:

Flood protection and fish and wildlife development

Location of Development or Subdivision:

Towns of Pittsford, West Rutland, and Ira

SUBJECT TO THE FINDINGS OF FACT AND CONCLUSIONS OF LAW
ATTACHED HERETO, THE ABOVE NAMED APPLICANT MAY COM-
MENCE DEVELOPMENT OR SUBDIVISION ON THE LAND AS SPECIFIED
IN SAID APPLICATION.

Permit Expiration Date: December 31, 1978

Permit Filed and
Entered Into the
Docket This Date:

August 9, 1972

SIGNED:

Brendan J. Whittier
Walter R. Benoit
Joseph A. Jones

DISTRICT ENVIRONMENTAL COMMISSION #1

Re: Application for

Application #1R0041

Upper Castleton River

Findings of Fact and

Watershed Project

Conclusions of Law

This matter came before a hearing held on March 28, April 26, and May 24, 1972 in Rutland, Vermont before District Environmental Commission #1, Brendan Whittaker presiding, on the application of the Upper Castleton River Watershed Project for a Land Use Permit under 10 VSA, Chapter 151. Parties to the application present were: Towns of Pittsford, West Rutland, Ira, and Castleton, Vermont; Poultney-Mettawee and Rutland Natural Resources Conservation Districts; Vermont Department of Fish and Game; Vermont Department of Water Resources; U. S. Department of Agriculture; Soil Conservation Service; Agency of Environmental Conservation; Rutland Regional Planning Commission; and Vermont Tomorrow.

The applicant for the Upper Castleton River Watershed Project consists of the Towns of Pittsford,* Ira, Castleton, and Poultney; Poultney-Mettawee Natural Resources Conservation District; Rutland Natural Resources Conservation District; Vermont Department of Fish and Game; and the Vermont Department of Water Resources. The applicant has no legal interest in property involved with the proposed project at the present time. Land at the Whipple Hollow Site will be acquired in fee simple; construction and maintenance easements will be obtained for the other works of improvement. Fishing access easements will be acquired on the Whipple Hollow Channel. The location and nature of the proposed project are shown on the plan exhibits submitted as part of the application.

The purpose of the proposed project is for watershed protection, flood prevention and fish and wildlife development. Land treatment measures are proposed for cropland, grassland, forest land, and development land to reduce sediment production and runoff, and to improve the productive capacity of the soil. Structural measures proposed include one multi-purpose structure for flood control and fish and wildlife development, two sections of channel improvement, a fish and wildlife marsh development, and diking with highway culvert alterations for flood control.

On the basis of the pleadings on file and evidence adduced at the hearing, the Commission makes the following findings of fact:

1. The proposed project will not result in undue water or air pollution.
 - a. Siltation control measures during construction will consist of:
 - 1) utilization of the Water Street Marsh as a siltation basin for construction above the marsh;
 - 2) construction of a siltation basin at the end of the West Rutland Lateral;

* West Rutland

- 3) regulation of the work schedule on the outlet channel improvement so as to not exceed a reading of 100 JTU at the old Route #4 bridge at Birdseye.
 - b. Little increase in stream temperature is expected as a result of outfall from the impoundment.
 - c. The Vermont Department of Water Resources will regulate the overall construction so that it does not violate the class B stream classification.
 - d. The proposed project will make land in the immediate area of the immediate area of the multiple purpose structure (impoundment) more attractive for low density residential use.
 - e. The Town of Pittsford has not adopted an ordinance controlling the installation of individual subsurface sewage disposal facilities.
 - f. The proposed project will lower the high water table that is currently adversely affecting residences in West Rutland.
 - g. The proposed project will result in a degree of flood protection for the Town of West Rutland, and make the area more favorable for development. Specifically, an area to the south of the residential area will become developable.
 - h. The Town of West Rutland has not adopted an ordinance controlling the installation of individual subsurface sewage disposal facilities.
2. The proposed project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result.
 - a. On all channel improvement work, those sections of channel not stable under design flows will be riprapped for stability and vegetation will be established on excavated banks as soon after construction as possible.
 - b. The total construction will generate less than the annual amount of natural silt transportation.
 - c. The overall siltation problem within the area of the proposed project will be improved.
 - d. The proposed project will reduce the susceptibility of low-lying agricultural land to flooding.
 - e. Flood stages below the confluence with Birdseye Brook will not be significantly changed as a result of the proposed project.

3. The proposed project will not cause an unreasonable burden on the ability of the Towns of West Rutland, Pittsford, and Ira to provide municipal or governmental services.
 - a. The Town of West Rutland has noted a tax of five cents on the Grand List for five years for the purpose of paying the town's share of the costs involved in the proposed project.
 - b. The West Rutland Planning Committee has gone on record stating they will use all their power and authority to adopt a town planning ordinance including flood plain zoning as soon as possible.
4. The proposed project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.
 - a. Concerning construction of the Whipple Hollow Channel Improvement:
 - 1) The west bank of the river will remain untouched and will retain the existing vegetation.
 - 2) The proposed channel will be curved to the extent practical and attempt to follow the natural line of the existing brook.
 - 3) It is anticipated that the proposed deepening of the channel will intercept aquifers containing cold water, thereby lowering the stream temperature. The resulting lower temperature water and deeper channel would provide a habitat more conducive to trout and would discourage trash fish.
 - b. The proposed project will provide increased access for fishing in the area.
5. The majority of construction will take place in the Town of West Rutland. West Rutland will derive the most benefits from the proposed project.
6. The Town of West Rutland as of this date does not have a town plan, zoning ordinance, or subdivision regulations duly adopted under Chapter 91 of Title 24.
7. There are no local or regional plans duly adopted under Chapter 91 of Title 24 that would be involved with the proposed project.
8. Due to the nature of the proposed project, subsections 2, 3, 5, 6, and 9 of Title 10 VSA, §6086(a) were not considered applicable.

CONCLUSION OF LAW

If compliance is made with the application as submitted, the above findings of fact, and the conditions hereinafter set forth, the proposed Upper Castleton River Watershed Project meets the standards and requirements of §6086 of Title 10 VSA, Chapter 151 and a land use permit will be issued to the applicant. This permit will expire on December 31, 1978 at which time all construction must be complete unless an extension is obtained under Title 10 VSA, §6091.

Conditions

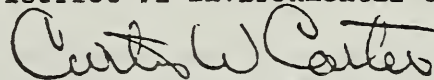
1. No construction on the Multiple-Purpose Structure (impoundment) shall commence until the Town of Pittsford certifies to the District #1 Environmental Commission that the Town has adopted an ordinance controlling the installation of individual subsurface sewage disposal facilities that may occur in the vicinity of the impoundment. The standards of this ordinance shall be at least as stringent as those established under the Board of Health subdivision regulations.

2. No construction shall commence until the Town of West Rutland certifies to the District #1 Environmental Commission that the town has:

- a) adopted a town plan that reflects the change in land use affected by the project, and provides for protection of the flood plain and,
- b) adopted an ordinance controlling the installation and maintenance of individual subsurface sewage disposal facilities that may occur in areas affected by the project.

August 9, 1972

For the District #1 Environmental Commission



Curtis W. Carter
Environmental Coordinator

Commission members participating
in the decision:

The Rev. Brendan Whittaker
Walter R. Beer, Jr.
Joseph Jones

ENVIRONMENTAL IMPACT STATEMENT -- UPPER CASTLETON RIVER 1/

1. Scope

This Statement was prepared using the guidelines as set forth by the Council on Environmental Quality in June 1970. The Committee has attempted to take into account possible effects of the project on life systems in the area and to weigh the net gain or loss to both human and animal habitat.

2. Impact on human environment

The first obvious result of this project will be a gain in productive agricultural land due to reduction of swamp areas in Whipple Hollow and along US Rt. 4. Also there will be a lowering of the water table in the urban areas which should result in improved health conditions and increased property values.

Secondary benefits should result from this lowering of the water table in that the capacity of the soil to store additional water should provide an extra margin of safety during periods of high precipitation and runoff. The dense mosquito population should diminish, although a field study to determine the type of mosquitos and thus their breeding habitat should be made so that intelligent controls can be applied.

It was felt by the committee that zoning ordinances should be passed to prevent the building of dwellings in the area which is presently swampy as it will continue to have a very high water table with a good possibility of periodic flooding. Better use might be made of the area through installation of a park-type facility with ponds and level ditches dug to provide fishing areas and flood water storage, and to establish a definite wet and dry pattern rather than continually soggy ground.

1/ Presented at informal field review, February 18, 1971. Compiled by:
Dr. J. Freeman, W. Harvey, R. Cornelius

It should be pointed out that the drying up of wetlands is not necessarily a good thing of itself; that in many instances these wetlands are an important link in the chain of living things. It is felt in this case that the good to be gained through improvement of man's habitat will far outweigh any damage done to other life forms.

A feeling of complete safety and complacency must not be allowed on the part of towns people or officials. Without regular and proper maintenance this flood control system will gradually cease to function effectively, and in time, conditions will revert to those of the present.

3. Impact of other Ecological Systems

In general the effect of the project on most wildlife should be good. There will be an increase and improvement in fish habitat, both in the impoundment and through the construction of off-channel pools. There should be an increase in use of the area by fishermen due to easier access and the increased water area.

The controlling of the water level above Water St. and the construction of potholes and level ditches by the Fish and Game Department should provide a great increase in the nesting and brood rearing capacity of area for waterfowl, a commodity much needed and fast disappearing in the northern hemisphere.

There may be a net loss in the areas which are suitable for marsh-dwelling animals such as muskrats, however these animals will probably move to remaining marsh areas, or adapt to stream bank type dwellings.

4. Possible Adverse Effects

It is possible that some increase in flooding may be experienced downstream. The Castleton Planning Commission is presently conducting studies to identify flood plain areas, and through zoning, prevent any use of these areas which might result in danger to property of persons.

There will be some unavoidable silting during construction. This should be kept to a minimum by prompt application of erosion control measures such as riprap, seeding and mulching. It is suggested that the construction contract be written to limit the area that can be left unseeded during construction to a maximum of three acres.

The drying of swampy areas will represent a loss of income to a few people who trap there, however, that loss is estimated to be less than \$1000 annually.

5. The short term use of the majority of land involved is or will be agriculture. This as well as the improvements to wildlife habitat will contribute toward the long term productivity of the area.

The only irreversable committment of natural resources is felt to be the damsite. This, when constructed and in operation will create a condition which would be nearly impossible to return to its former state. All other measures could easily be "undone" and the area allowed to revert to its present condition.

The Stream has been classified as Class B. The effect of the project on water quality will not be adverse. Existing zoning regulations in Pittsford should protect the waters of the impoundment. It would be very beneficial if similar measures were enacted in West Rutland.

In summary, the committee felt that the project as formulated, properly constructed, and maintained, will have a net effect that is beneficial to the environment of the area.

